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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RTID 0648-XB809

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Weapons Testing at Vandenberg Space Force Base, California

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; issuance of two incidental harassment authorizations.

SUMMARY: In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that NMFS has issued two consecutive IHAs to the United States Department of the Air Force (DAF) to incidentally harass, by Level B harassment only, marine mammals during two years of testing of the Long Range Cannon (LRC) system at Vandenberg Space Force Base (VSFB), California. The DAF's activities are considered military readiness activities pursuant to the MMPA, as amended by the National Defense Authorization Act for Fiscal Year 2004 (2004 NDAA).

DATES: The Year 1 Authorization is effective from October 1, 2023 to September 30, 2024. The Year 2 Authorization is effective from October 1, 2024 to September 30, 2025.

FOR FURTHER INFORMATION CONTACT: Robert Pauline, Office of Protected Resources, NMFS, (301) 427-8401. Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: *https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-*

marine-mammal-protection-act. In case of problems accessing these documents, please call the contact listed above.

SUPPLEMENTARY INFORMATION:

Background

The MMPA prohibits the "take" of marine mammals, with certain exceptions. Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq*.) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are proposed or, if the taking is limited to harassment, a notice of a proposed incidental harassment authorization is provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for taking for subsistence uses (where relevant). Further, NMFS must prescribe the permissible methods of taking and other "means of effecting the least practicable adverse impact" on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stocks for taking for certain subsistence uses (referred to in shorthand as "mitigation"); and requirements pertaining to the mitigation, monitoring and reporting of the takings are set forth.

The 2004 NDAA (Pub. L. 108–136) removed the "small numbers" and "specified geographical region" limitations indicated above and amended the definition of "harassment" as applied to a "military readiness activity." The activity for which incidental take of marine mammals is being requested addressed here qualifies as a

military readiness activity. The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

Summary of Request

On July 15, 2021, NMFS received a request from the DAF for two consecutive IHAs to take marine mammals incidental to LRC testing at VSFB, California. The application was deemed adequate and complete on November 19, 2021. The DAF's request is for take of California sea lions, Steller sea lions, harbor seals, and northern elephant seals by Level B harassment. Neither the DAF nor NMFS expects serious injury or mortality to result from these activities and, therefore, IHAs are appropriate. The issued IHAs would each cover one year of the two-year project.

Description of Activities

Overview

The DAF is planning to conduct test activities of the LRC system at VSFB over 2 years and requested the issuance of two consecutive one-year IHAs. The LRC system is a multi-element, multi-phase test program of the U.S. Army's (Army's) next-generation artillery systems. Major components of the artillery system include the cannon, gun mount, artillery projectile, and propelling charges. These components would be sited at the existing deactivated Launch Facility (LF)-05 site on VSFB. The proposed activities would include testing of the LRC by firing non-explosive projectiles over the Pacific Ocean from the VSFB shoreline onto and beyond the Point Mugu Sea Range (PMSR). A total of 77 projectiles are proposed to be fired over 51 test event days (39 events in year 1 and 12 events in year 2).

A detailed description of the planned testing activities is provided in the **Federal Register** notice of the proposed IHAs (87 FR 762; January 6, 2022). Since that time, no changes have been made to the project activities. Therefore, a detailed description is not

provided here. Please refer to that **Federal Register** notice for the description of the specified activities.

Comments and Responses

A notice of NMFS's proposal to issue IHAs to DAF was published in the **Federal Register** on January 6, 2022 (87 FR 762). That notice described, in detail, DAF's activities, the marine mammal species that may be affected by the activities and the anticipated effects on marine mammals. During this period, NMFS received an informal comment from the Marine Mammal Commission (MMC) suggesting that we revise text in the **Federal Register** notice of issuance and the final issued IHAs to match language from VSFB final rule (84 FR 14314; April 10, 2019), condition in § 217.65(b)(3)(i) to (iv) pertaining to required reporting measures. We agreed to make this change.

Changes From the Proposed IHAs to Final IHAs

NMFS notes that changes were made from the notice of proposed IHAs (87 FR 762; January 6, 2022) and draft IHAs to this **Federal Register** notice of issuance and both issued IHAs in response to an informal comment from the MMC. In the **Proposed Monitoring and Reporting** section of the notice of proposed IHAs (87 FR 762; January 6, 2022) as well as 6(c)(iii) and (iv) in both draft IHAs, the following language pertaining to monitoring report content was removed:

- Number, species, and any other relevant information regarding marine mammals observed and estimated exposed/taken during activities; and
- Description of the observed behaviors (in both presence and absence of test activities).

The text below has been included in this **Federal Register** notice of issuance and in 6(c)(iii) through 6(c)(vii) of both issued IHAs:

- Number and species of pinnipeds present on the haulout prior to commencement of cannon testing;

- Description of pinniped behavior in the absence of cannon testing (before and after);
- Number and species of pinnipeds that may have been harassed as noted by the number of pinnipeds estimated to have moved in response to the source of disturbance, ranging from short withdrawals at least twice the animal's body length to longer retreats over the beach, or if already moving a change of direction of greater than 90 degree, or, entered the water as a result of cannon testing;
- For any pinnipeds that entered the water, the length of time they remained off the haulout; and
- Description of behavioral modifications by pinnipeds that were likely the result of cannon testing.

No other changes have been made to this notice or either of the IHAs that were issued to the DAF.

Description of Marine Mammals in the Area of Specified Activities

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history, of the potentially affected species. Additional information regarding population trends and threats may be found in NMFS's Stock Assessment Reports (SARs; *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*) and more general information about these species (*e.g.*, physical and behavioral descriptions) may be found on NMFS's website (*https://www.fisheries.noaa.gov/find-species)*.

Table 1 lists all species or stocks for which take is expected and proposed to be authorized for this action, and summarizes information related to the population or stock, including regulatory status under the MMPA and Endangered Species Act (ESA) and potential biological removal (PBR), where known. For taxonomy, we follow Committee

on Taxonomy (2021). PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS's SARs). While no serious injury or mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS's stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS's U.S. SARs (*e.g.*, Carretta *et al.,* 2021a). All values presented in Table 2 are the most recent available at the time of publication and are available in the 2020 U.S. Pacific SARs (Carretta *et al.,* 2021a) and 2021 draft Pacific and Alaska SARs (Carretta *et al.,* 2021b, Muto *et al.,* 2021) available online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports*.

Table 1. Marine Mammal Species Potentially Present in the Project Area that May be Affected by the Proposed Activities.

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N)[1]	Stock abundance (CV, N_{min}, most recent abundance survey)[2]	PBR	Annual M/SI[3]
Order Carnivora – Superfamily Pinnipedia						
Family Otariidae (eared seals and sea lions)						
California sea lion	*Zalophus californianus*	U.S.	-, -, N	257,606 (n/a, 233,515, 2014)	14,011	>320
Steller sea lion	*Eumetopias jubatus*	Eastern U.S.	-, -, N	43,201 (43,201, 2017)	2,592	112
Family Phocidae (earless seals)						

Harbor seal	*Phoca vitulina richardsi*	California	-, -, N	30,968 (N/A, 27,348, 2012)	1,641	43
Northern Elephant seal	*Mirounga angustirostris*	California Breeding	-, -, N	187,386 (N/A, 85,369, 2013)	5,122	13.7

[1] - Endangered Species Act (ESA) status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

[2]- NMFS marine mammal stock assessment reports online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports* . CV is coefficient of variation; Nmin is the minimum estimate of stock abundance. In some cases, CV is not applicable.

[3] - These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (e.g., commercial fisheries, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a minimum value or range.

A detailed description of the species likely to be affected by the LRC activities, including brief information regarding population trends and threats, and information regarding local occurrence, were provided in the **Federal Register** notice for the proposed IHA (87 FR 762; January 6, 2022). Since that time, we are not aware of any changes in the status of these species and stocks; therefore, detailed descriptions are not provided here. Please refer to that **Federal Register** notice for those descriptions. Please also refer to NMFS's website (*https://www.fisheries.noaa.gov/find-species*) for generalized species accounts.

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Current data indicate that not all marine mammal species have equal hearing capabilities (*e.g.*, Richardson *et al.,* 1995; Wartzok and Ketten, 1999). To reflect this, Southall *et al.,* (2007) recommended that marine mammals be divided into functional hearing groups based on directly measured or estimated hearing ranges on the basis of available behavioral response data, audiograms derived using auditory evoked potential techniques, anatomical modeling, and other data. Note that no direct measurements of hearing ability have been successfully completed for

mysticetes (*i.e.*, low-frequency cetaceans). A functional group for pinnipeds exposed to sounds out of water was established with a hearing range shown in Table 2. This is based on behavioral measurements of hearing for several pinniped species.

Table 2. Marine Mammal Functional Hearing Group for Pinnipeds (In Air) and its Generalized Hearing Range.

Hearing Group	Generalized Hearing Range*
Pinnipeds (in air)	75 Hz to 30 kHz

*Southall *et al.,* 2007.

Potential Effects of Specified Activities on Marine Mammals and their Habitat

The effects of testing activities have the potential to result in behavioral harassment of marine mammals in the vicinity of the study area. The **Federal Register** notice for the proposed IHAs (87 FR 762; January 6, 2022) included a discussion of the effects of anthropogenic noise on marine mammals and their habitat, therefore that information is not repeated here; please refer to the **Federal Register** notice (87 FR 762; January 6, 2022) for that information.

Estimated Take

This section provides an estimate of the number of incidental takes authorized through this IHA, which will inform NMFS' negligible impact analysis and determination.

Harassment is the only type of take expected to result from these activities. For this military readiness activity, the MMPA defines "harassment" as (i) Any act that injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) Any act that disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering, to a point where the behavioral patterns are abandoned or significantly altered (Level B harassment).

Authorized takes would be by Level B harassment only, in the form of disruption of behavioral patterns for individual marine mammals resulting from exposure to airborne sounds from cannon fire and sonic booms. Based on the nature of the activity, Level A harassment and Level B harassment in the form of TTS are neither anticipated nor proposed to be authorized.

As described previously, no mortality is anticipated or authorized for this activity. Below we describe how the take is estimated.

Generally speaking, we estimate take by considering: (1) acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment; (2) the area that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) the number of days of activities. We note that while these basic factors can contribute to a basic calculation to provide an initial prediction of takes, additional information that can qualitatively inform take estimates is also sometimes available (*e.g.,* previous monitoring results or average group size). Below, we describe the factors considered here in more detail and present the proposed take estimate.

Acoustic Thresholds

Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source (*e.g.*, frequency, predictability, duty cycle), the environment (*e.g.*, bathymetry), and the receiving animals (hearing, motivation, experience, demography, behavioral context) and can be difficult to predict (Southall *et al.,* 2007, Ellison *et al.,* 2012). Based on what the available science indicates and the practical need to use a threshold based on a factor that is both predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset

of behavioral harassment. Generally, for in-air sounds, NMFS predicts that harbor seals exposed above received levels of 90 dB re 20 micropascal (μPa) root mean square (rms) will be behaviorally harassed, and other pinnipeds will be harassed when exposed above 100 dB re 20 μPa (rms). However, more recent data suggest that pinnipeds will be harassed when exposure is above 100 dB Sound Exposure Level (SEL) (unweighted) (*Criteria and Thresholds for U.S. Navy Acoustic and Explosive Effects Analysis (Phase III) Technical Report* (U.S. Department of the Navy, 2017)) as shown in Table 3. NMFS helped develop the Phase III criteria and previously used this threshold for the SNI, PMSR incidental harassment authorization (84 FR 28,462; June 19, 2019). Therefore, NMFS is using 100 dB re 20 μPa2s SEL (unweighted) here.

Table 3. Behavioral threshold for impulsive sound for pinnipeds.

Species	Level B harassment by behavior disturbance threshold
All pinniped species (in-air)	100 dB re 20 μPa2s SEL (unweighted)

Each time the LRC is fired it would generate blast noise from the cannon firing and a nearly simultaneous sonic boom from the projectile as it travels along its flight path. The blast noise can be described as an overpressure, and would be highest in the immediate vicinity of the cannon and dissipate with distance from the LF-05 site. The sound from the cannon fire and blast and the sonic boom would reach the beach nearly simultaneously, and the two sounds would be indistinguishable to pinnipeds on the beach or just offshore.

Table 4: TTS/PTS In-Air Thresholds for Pinnipeds In-air

Group	Impulsive			
	TTS Threshold SEL (weighted)	TTS Threshold Peak SPL (unweighted)	PTS Threshold SEL (weighted)	PTS Threshold Peak SPL (unweighted)
All other Pinnipeds	146	170	161	176

Harbor seals	123	155	138	161

The in-air Sound Pressure Level (SPL) generated by the combined cannon blast and sonic boom is likely only to exceed the temporary threshold shift (TTS) threshold (155 dB re 20 µPa) shown in Table 4 onshore directly west of LF-05. The 155 dB re 20 µPa threshold only applies to harbor seals. The TTS threshold for all other pinnipeds is 170 dB re 20 µPa as shown in Table 4 which is well above calculated in-air sound levels. This area consists of approximately 0.15 km of rocky shoreline and 0.20 km of narrow sandy beach, with an approximate maximum of 150 feet (46 meters) of dry sand at low tides, comprising the northern tip of Minuteman Beach. Three pinniped species (California sea lion, northern elephant seal, and Pacific harbor seal) could potentially utilize this location. However, observations of live pinnipeds on Minuteman Beach are very infrequent and have been limited to only California sea lions, and appear coincident with elevated concentrations of domoic acid (red tide) in nearshore waters (Evans 2020). Harbor seals have never been observed at this location. Because of their rare occurrence on Minuteman Beach and the lack of documented use of the coastal strand area between LF-05 and Minuteman Beach, it is very unlikely that any marine mammals, including harbor seals, would be present in that portion of the Project Area. In summary, and based on this analysis, TTS effects would be very unlikely for harbor seals and discountable for all other pinniped species. In addition, no PTS or other direct injury to pinnipeds is anticipated from in-air noise caused by LRC testing activities.

The nearest pinniped haulout from LF-05 is Lion’s Head, which is approximately 0.5 km distant and is used by harbor seals. California sea lions could also use this location but have not been observed in the past 6 years of monthly counts performed by the DAF (U.S. Air Force 2020; Evans 2020). The maximum in-air SPL received at Lion's Head from the cannon blast is predicted to be 148 dB re 20 µPa (See Figure 6-1 in application), and the SPL from the sonic boom is predicted to be 8.5 psf (146.2 dB re 20

µPa; Figure 6-2 in application). The combined SPL received on the beach at Lion's Head, assuming noise from both sources arrived simultaneously, would be 150.2 dB re 20 µPa (calculated as described in the previous section).This total SPL is less than the TTS threshold for all pinniped hearing groups.

Marine Mammal Occurrence and Take Estimation

To conservatively estimate the number of pinnipeds that would potentially be exposed to noise levels above the Level B harassment behavioral threshold during test events, the analysis considered the maximum number of pinnipeds observed at haulouts within the predicted 100 dB re 20 µPa^{2}sec or greater SEL. The furthest haulout within this area is Lion Rock. Therefore, pinnipeds observed at the Lion Rock haulout were included to estimate the numbers of pinnipeds exposed during each test event day. During Test 1, the cannon will be fired multiple times per day. Because the analysis assumes all hauled-out pinnipeds would react to the initial noise by either an alert reaction, reorienting their position on land, or leaving the haulout and returning to the water, multiple cannon blasts in succession would result in only one take for each individual on a given day. A total of 35 firing events would occur during the test event which uses only Projectile A. Ten tests would occur during the weeks 1 and 2 and the remaining 25 tests would occur over the course of 13 test days during weeks 3 through 5. Similarly, for Test 2 one Projectile A and one Projectile B would be fired on each of 3 days during a 2-week period. For Tests 1, 2, and 3 one Projectile A and one Projectile C would be fired on each of 6 test days over a 2-week period. Over the entire testing period (from calendar year 2023 through 2025) there will be a total of 51 days when test events would produce in-air noise at levels that could potentially result in take of pinnipeds by Level B harassment.

Estimated take of California sea lions by Level B harassment was calculated by taking the highest number of individuals (n=883) observed on a single day during the three most recent aerial surveys (2013, 2016, 2017) of Lion Rock multiplied by the

number of days (39 for year 1 and 12 for year 2) over which each test event would occur. Surveys were performed by NMFS (NMFS 2020b). The total number of exposures to in-air noise from the proposed testing would result in an estimated 34,437 takes by Level B harassment during Year 1 and 10,596 takes by Level B harassment during Year 2 (Table 6, Table 7). Therefore the DAF requested, and NMFS has authorized this amount of Level B harassment by behavioral disruption for the Year 1 and Year 2 IHAs, respectively.

The DAF estimated take by Level B harassment by assuming that the number of Steller sea lions (n=3) observed once at Lion Rock in October 2017 could occur during each day of testing. The total number of exposures to in-air noise from the proposed testing would result in an estimated 117 takes by Level B harassment in Year 1 and 36 takes by Level B harassment in Year 2. The DAF requested and NMFS has authorized 117 takes during Year 1 and 36 takes during Year 2 by Level B harassment from behavioral disruption, as shown in Table 5 and Table 6.

Take of harbor seals was calculated by taking the highest number observed hauled out at Little Sal (n=10) and Lion's Head (n=9) during monthly counts in 2019 and 2020 (U.S. Air Force 2020, In Prep.), resulting in a total of 19 harbor seals for each test event. This resulted in an estimate of 741 takes in Year 1 and 228 takes in Year 2 by Level B harassment. Therefore, the DAF requested and NMFS has authorized 741 takes during Year 1 and 228 takes during Year 2 by Level B harassment from behavioral disruption (Table 5, Table 6).

Northern elephant seals have not been observed hauled out at any locations within the project area in which Level B harassment could occur. However, overall numbers have been increasing on VSFB over the past decade (U.S. Air Force 2020), and it is possible that northern elephant seals may begin to occupy areas where they have not previously been observed. The DAF conservatively assumed that one northern elephant

seal may be exposed to in-air noise resulting in behavioral disturbance during each test event. Therefore, NMFS has authorized 39 takes during Year 1 and 12 takes during Year 2 by Level B harassment from behavioral disruption (Table 5, Table 6).

Table 5—Estimated Takes by Level B Harassment by Test Event and Test Schedule

Test Dates	IHA Year 1			IHA Year 2	
Test Event	1	2	3	4	5
California sea lion	26,490	2,649	5,298	5,298	5,298
Steller sea lion	90	9	18	18	18
Harbor seal	570	57	114	114	114
Northern elephant seal	30	3	6	6	6
All	27,180	2,718	5,436	5,436	5,436

Table 6—Level B Harassment Take Estimates by Year

Species	Estimated Number of Level B Harassment Events Year 1	Estimated Number of Level B Harassment Events Year 2
California Sea lion	34,437	10,596
Steller sea lion	117	36
Harbor seal	741	228
Northern elephant seal	39	12

Mitigation

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to the activity, and other means of effecting the least practicable impact on the species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stock for taking for certain subsistence uses (latter not applicable for this action). NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting the activity or other means of effecting the least practicable adverse impact upon the affected species or stocks and their habitat (50 CFR 216.104(a)(11)). The NDAA for FY 2004 amended the MMPA as it relates to military readiness activities and the incidental take authorization

process such that “least practicable impact” shall include consideration of personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where applicable, we carefully consider two primary factors:

(1) The manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned) and the likelihood of effective implementation (probability implemented as planned); and

(2) The practicability of the measures for applicant implementation, which may consider such things as cost, impact on operations, and, in the case of a military readiness activity, personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

The DAF must employ Protected Species Observers (PSOs) at established monitoring locations as described in the **Monitoring and Reporting** section. PSOs must monitor the project area to the maximum extent possible based on the required number of PSOs, required monitoring locations, and environmental conditions.

The DAF, when practicable, would perform LRC test activities when tides are greater than 1.0 foot (0.3 m). This is when haulouts tend to be unoccupied by pinnipeds and would reduce the number of exposures.

To prevent unauthorized take of marine mammals, test activities must be halted upon observation of either a species for which incidental take is not authorized or a

species for which incidental take has been authorized but the authorized number of takes has been met.

Based on our evaluation of the applicant's planned measures, NMFS has determined that the proposed mitigation measures provide the means effecting the least practicable impact on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Monitoring and Reporting

In order to issue an IHA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104(a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and the level of taking or impacts on populations of marine mammals that are expected to be present while conducting the activities. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.*, presence, abundance, distribution, density).
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.*, source characterization, propagation, ambient noise); (2) affected species (*e.g.*, life history, dive patterns); (3) co-occurrence of marine mammal species with the action; or (4) biological or behavioral context of exposure (*e.g.*, age, calving or feeding areas).

- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors.
- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks.
- Effects on marine mammal habitat (*e.g.*, marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat).
- Mitigation and monitoring effectiveness.

Visual Monitoring and Recording

PSOs must commence monitoring at Lion's Head, Little Sal, northern end of Minuteman Beach (beach between Minuteman Beach parking area and LF-05), and Lion Rock at least 72 hours prior to LRC test events and continue until at least 48 hours after each event. PSO's will be stationed at locations offering the best possible view of individual haulout sites. During each daily monitoring effort, surveys (counts with binoculars and spotting scopes, if necessary) will be conducted hourly for 6 hours (6 counts per day) centered around the late morning or afternoon low tides as much as possible. Monitors will record species; number of animals hauled out; general behavior; presence of pups; age class; and gender. Environmental conditions will also be monitored including tide, wind speed, air temperature, and swell.

PSOs cannot be present to survey Little Sal and Lion's Head when live cannon fire is underway for safety purposes, therefore, video recording of pinnipeds would be conducted during live fire testing in order to record any reaction to the blast noise and sonic boom. Lion Rock is approximately 0.25 mi (0.4 km) from the closest observation location and only half of the offshore rock is visible from land so it may be monitored via drone rather than traditional survey methods (spotting scopes and binoculars). The DAF would prefer to use a drone so that the entire rock can be observed. However, if DAF is

unable to secure necessary permits, protected species observers (PSOs) would use a spotting scope to observe reactions during test events as an alternative.

Reporting

Technical reports will be submitted to the NMFS' Office of Protected Resources within 90 days from the date that each IHA expires. This report will provide full documentation of methods, results, and interpretation pertaining to LRC testing activities covered under these proposed IHAs.

The DAF will submit reports that include:

- Summary of test activities (dates and times);
- Summary of mitigation and monitoring measures implemented;
- Number and species of pinnipeds present on the haulout prior to commencement of cannon testing;
- Description of pinniped behavior in the absence of cannon testing (before and after);
- Number and species of pinnipeds that may have been harassed as noted by the number of pinnipeds estimated to have moved in response to the source of disturbance, ranging from short withdrawals at least twice the animal's body length to longer retreats over the beach, or if already moving a change of direction of greater than 90 degree, or, entered the water as a result of cannon testing;
- For any pinnipeds that entered the water, the length of time they remained off the haulout;
- Description of behavioral modifications by pinnipeds that were likely the result of cannon testing;
- Environmental conditions when observations were made including visibility, air temperature, clouds, wind speed and direction, tides, and swell height and direction; and

- Assessment of the implementation and effectiveness of mitigation and monitoring measures.

If a dead or seriously injured pinniped is found during post-firing monitoring, the incident must be reported to the NMFS Office of Protected Resources and NMFS West Coast Regional Stranding Coordinator immediately. In the unanticipated event that any cases of pinniped mortality are judged to result from LRC testing activities at any time during the period covered by these IHAs, this will be reported to NMFS and the West Coast Stranding Coordinator. The report must include the following information:

1. Time and date of the incident;
2. Description of the incident;
3. Environmental conditions (*e.g.,* wind speed and direction, cloud cover, and visibility);
4. Description of all marine mammal observations and active sound source use in the 24 hours preceding the incident;
5. Species identification or description of the animal(s) involved;
6. Fate of the animal(s); and
7. Photographs or video footage of the animal(s).

Testing activities must not resume until NMFS is able to review the circumstances of the prohibited take. If it is determined that the unauthorized take was caused by LRC activities, NMFS will work with the Holder to determine what measures are necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. The DAF may not resume their activities until notified by NMFS.

Negligible Impact Analysis and Determination

NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50

CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be "taken" through harassment, NMFS considers other factors, such as the likely nature of any responses (*e.g.*, intensity, duration), the context of any responses (*e.g.*, critical reproductive time or location, migration), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS's implementing regulations (54 FR 40338; September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the environmental baseline (*e.g.*, as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

To avoid repetition, the discussion of our analyses applies to all the species listed in Table 6, given that the anticipated effects of this activity on these different marine mammal species are expected to be similar. Activities associated with the proposed activities, as outlined previously, have the potential to disturb or displace marine mammals.

The specified activities may result in take, in the form of Level B harassment (behavioral disturbance) only, from airborne sounds associated with LRC fire and accompanying sonic booms. Based on the best available information, including monitoring reports from similar activities (*i.e.* sonic booms) at VSFB and nearby launch facilities, behavioral responses will likely be limited to reactions such as alerting to the noise, with some animals possibly moving toward or entering the water, depending on the species and the intensity of the cannon fire and sonic booms. Repeated exposures of

individuals to levels of sound that may cause Level B harassment are unlikely to result in TTS or PTS. Thresholds for PTS are higher than modeled sound levels across the entirety of the Project Area, and thresholds would not be exceeded or significantly disrupt foraging behavior. Thus, even repeated instances of Level B harassment of some small subset of an overall stock is unlikely to result in any significant realized decrease in fitness to those individuals, and thus would not result in any adverse impact to the stock as a whole.

If a marine mammal responds to a stimulus by changing its behavior (*e.g.,* through relatively minor changes in locomotion direction/speed), the response may or may not constitute taking at the individual level, and is unlikely to affect the stock or the species as a whole. However, if a sound source displaces marine mammals from an important feeding or breeding area for a prolonged period, impacts on animals or on the stock or species could potentially be significant (*e.g.,* Lusseau and Bejder, 2007; Weilgart, 2007). Flushing of pinnipeds into the water has the potential to result in mother-pup separation, or could result in a stampede, either of which could potentially result in serious injury or mortality. However, even in the instances of pinnipeds being behaviorally disturbed by cannon fire and associated sonic booms at VSFB and nearby launch facilities no evidence has been presented of abnormal behavior, injuries or mortalities, or pup abandonment as a result of sonic booms. These findings came as a result of more than two decades of surveys at VSFB. Post missile-launch monitoring generally reveals a return to normal behavioral patterns within minutes up to an hour or two of each launch, regardless of species (SAIC 2012). Therefore, in-air sound associated with canon firing and associated sonic booms is not expected to impact reproductive rates or population levels of affected species.

We do not anticipate that the proposed activities would result in any temporary or permanent effects on the habitats used by the marine mammals in the proposed area,

including the food sources they use (*i.e.* fish and invertebrates) since underwater sound levels would not affect prey species.

In summary and as described above, the following factors primarily support our determination that the impacts resulting from this activity are not expected to adversely affect the species or stocks through effects on annual rates of recruitment or survival:

- No serious injury or mortality is anticipated or authorized;
- No impacts to cetaceans are anticipated;
- No impacts in the form of TTS or PTS are expected or authorized;
- The anticipated incidences of Level B harassment are expected to consist of, at worst, temporary modifications in behavior (*i.e.,* short distance movements and occasional flushing into the water), which are not expected to adversely affect the fitness of any individuals or populations;
- The proposed activities are expected to result in no long-term changes in the use by pinnipeds of haulouts in the project area, based on over 20 years of monitoring data;
- No impacts to marine mammal habitat/prey are expected; and
- The expected efficacy of planned mitigation measures in reducing the effects of the specified activity to the level of least practicable adverse impact.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the proposed monitoring and mitigation measures, NMFS finds that for both the Year 1 IHA and the Year 2 IHA the total marine mammal take from the proposed activity will have a negligible impact on all affected marine mammal species or stocks.

Unmitigable Adverse Impact Analysis and Determination

There are no relevant subsistence uses of the affected marine mammal stocks or species implicated by this action. Therefore, NMFS has determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Endangered Species Act

Section 7(a)(2) of the Endangered Species Act of 1973 (ESA; 16 U.S.C. 1531 *et seq*.) requires that each Federal agency insure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat. To ensure ESA compliance for the issuance of IHAs, NMFS consults internally whenever we propose to authorize take for endangered or threatened species.

No incidental take of ESA-listed species is authorized or expected to result from this activity. Therefore, NMFS has determined that formal consultation under section 7 of the ESA is not required for this action.

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) and NOAA Administrative Order (NAO) 216-6A, NMFS must 39 review our proposed action (*i.e.,* the issuance of an IHA) with respect to potential impacts on the human environment.

This action is consistent with categories of activities identified in Categorical Exclusion B4 (IHAs with no anticipated serious injury or mortality) of the Companion Manual for NOAA Administrative Order 216-6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that would preclude this categorical exclusion. Accordingly, NMFS has determined that the

issuance of the proposed IHAs qualifies to be categorically excluded from further NEPA review

Authorizations

As a result of these determinations, NMFS has issued two distinct and consecutive one-year IHAs to the Department of the Air Force for conducting Long Range Cannon testing at Vandenberg Space Force Base, California from October 1, 2023 to September 30, 2024 (Year 1) and from October 1, 2024 to September 30, 2025 (Year 2) provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated.

Dated: March 3, 2022.

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Kimberly Damon-Randall,

Director, Office of Protected Resources,

National Marine Fisheries Service.

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